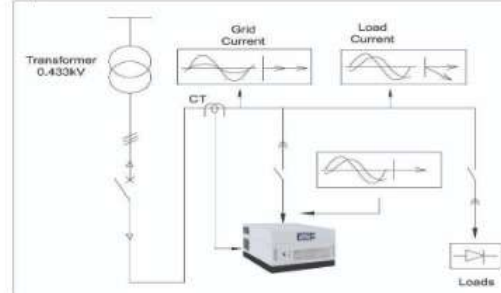


Static VAR Generator (SHR-SVG)

Introduction

SHR-SVG is the next generation real-time, stepless reactive power compensator based on 3 level IGBT inverter topology. The architecture and construction of SVG is similar to that of Active Harmonic Filter. When the load is generating inductive or capacitive, it makes load current lagging or leading the voltage. SVG detects the phase angle of difference & generates leading or lagging current injecting into the source at PCC, making the phase angle of current almost the same as that of voltage on the transformer in step less & real time basis, which makes fundamental power factor to unity.



Working Principle

The SHR-SVG acts as controlled voltage source with series reactance & energy storage DC coupling capacitor which is connected to grid in shunt and able to do reactive power exchange in bipolar direction. SVG controller given with line CT & PT feedback to measure reactive power demand irrespective of balance or unbalance load. The reactive power output of SHR-SVG is precisely controlled to the reference value by adjusting wave shape, magnitude & phase angles of the internal AC voltage (with the help of pulse width modulation). The real time reference value of the reactive power output of the SHR-SVG is precisely calculated as per the target power factor, voltage and current values entered by user.

Features and Advancement

- Multifunctional – reactive power correction, load balancing (between phase to phase & phase to neutral)
- High speed correction, precise, step-less and bidirectional compensation (lagging and leading)
- Most advanced 3 level inverter topology enables to operate at high switching (>20 KHz) frequencies for precise & faster response with ripple and noise free operation
- Low internal thermal losses
- Designed for harsh weather condition
- Operation under distorted voltage condition
- Relatively maintenance free and user friendly
- HT side power factor correction with the LT as well as HT side CT sensing possible with shreem smart sense technology
- Stackable up to 5 modules in each floor mounting rack and more modules in parallel to enhance capacity with single HMI
- Unique feature of no load reactive power compensation is inbuilt.
- No switching ripple injection into the grid due to inbuilt 3rd order LCL filter with active damping
- **The SHR-SVG plus is the next generation of SVG having feature to mitigate harmonics from 2nd to 15th order**
- Ideal solution for reduction of kVAh charges in kVAh billing pattern
- It improves True P.F. there by correcting fundamental P.F. & distortion P.F.

Dimentionns

Rating of SVG	Length (L)	Depth (D)	Height (H)
30 kVAr	800	800	1025
50 kVAr	800	800	1025
75 kVAr	800	800	1025
100 kVAr	800	890/800	600/1025
200 kVAr	1200	890/800	725
300 kVAr	1300	890/800	1050
400 kVAr	1300	890/800	1375
500 kVAr	1300	890/800	1700

- Dimentionns may vary as the development is continuous process
- Both cabinate and wall mounting design are available

Technical Specification

Operating Conditions	
Rated voltage (RMS)	400V (±10%), 440V (±10%)
Operating temperature range	0 to 45° C (Non-condensing)
Product Specifications	
Semiconductor device	IGBTs (3-Level Topology)
Maximum Output per module	30/50/75/100 kVAr
Insallation type	cabinate/wall mounmtd
Internal thermal losses	< 2.5 %
protection	Under Voltage, over voltage over current, over temperature over DC link voltage, unbalance, other Hardware & S.C. etc.
Enclose protection	IP31
Color	Siemens gray
Cooling	Air forced cooling
Dynamic response time	100 μsec
Correction time	10 ms (half cycle)
Parallel communication	CAN Bus
Noise level	< 65dB
Communication	Cloud connectivity via LAN / Internet over Wi-Fi or ethernet, RS-485 modbus protocol

Applications

- Steel industries
- Mining industries
- Metro rail
- Shping ports
- Windmills & Solar plants
- Cement & Textile Plants
- Commercial establishments like malls & hospitals
- IT park & Data center
- Sugar Industries
- Rice mill
- Chiller plants, pump & paper industries
- Chemical industries
- Induction & Arc furnace